

Studies in North American Spiders: the Genus *Cochlembolus* (*Ananeina*).

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(Plate IV.)

COCHLEMBOLUS gen. nov.

Type: Dismodicus alpinus Banks.

Related to *Spirembolus* and *Tortembolus* by the spiral form of the tail-piece and middle part of the embolus: distinguished from *Spirembolus* by the cephalic pits in the male and from *Tortembolus* by the shorter apophysis on the tibia of male palpus. The type of this genus was placed by Banks in *Dismodicus* to which it is not closely related. The American representative of *Dismodicus* is, as pointed out by Simon in 1884 (Ar. Fr. 5:568), *Lophocarenum decemoculatum* Emerton, a species very closely related to *D. bifrons* Blackwall, its type.

The first three species here included in the genus have been carefully studied and there is no doubt that they form a closely related natural group. I have also included *Lophocarenum vernale* Emerton, the type of which I studied in the Museum of Comparative Zoology at Cambridge. The drawings of the palpus which I had made at that time clearly indicate its close relationship to the other three species.

COCHLEMBOLUS ALPINUS (Banks).

Dismodicus alpinus Banks. Can. Ent. 28:63, 1896.

Lophocarenum alpinum Emerton. Conn. Acad. Sci. Trans. 14:190, pl. 3, fig. 3, 1909.

Not *Lophocarenum alpinum* Emerton. Conn. Acad. Sci. Trans. 20:150, pl. 2, fig. 7, 1915.

Tortembolus alpinus Crosby, in Chamberlin Calif. Ac. Sci. Proc. 14:115, 1925.

♂. Length, 2 mm. Cephalothorax gray with the cephalic lobe pale, dusky behind. Cephalothorax viewed from above elongate, the sides evenly rounded, round-pointed in front, the clypeus protruding; viewed from the side, gradually ascending and very gently arched over the thorax to the base of the cephalic lobe which is very high, rounded above and leaning forward, clothed above and in front with hairs directed forward and downward. Ocular area and clypeus slanting forward, the latter protruding and strongly convex.

Posterior eyes in a straight line, the median borne under the base of the cephalic lobe, separated by more than the diameter and from the lateral by less than the diameter. Anterior eyes in a very gently procurved line, the median smaller than the lateral and almost touching, separated from the lateral by nearly twice the diameter. Median ocular area convex and thickly clothed with hairs directed forward and downward. Cephalic pits small and placed in deep furrows.

Chelicerae dusky orange yellow. Sternum and labrum nearly black. Endites dusky. Legs pale yellowish. Abdomen gray. Epigastric plates very finely striate.

Femur of palpus rather short and thick, straight. Patella long, nearly straight and almost as thick as the femur. Ratio of length of femur to that of patella as 25 to 16. Tibia rather stout basally, armed above with two strong spines, the dorsal margin armed with two teeth, the mesal one black and strongly incurved, the lateral one broad, thin and quadrate, the two separated by a deep rounded fissure. The cymbium strongly angulate dorsally at base. Paracymbium broad, thin, with a short hook at tip. Bezel very high, thin, semitransparent with a rounded margin. The embolic division of the strongly spiral type. The tail-piece at apex broad and flat, the middle turn apparently doubled, the embolus long and slender making one complete turn around the tip of the bulb.

♀. Length, 2.25 mm. Similar to male but with the head normal. Cephalothorax viewed from above rounded on the sides with a shallow but distinct constriction at the cervical groove, broadly rounded across the front; viewed from the side rather steeply ascending behind and rounded over the head, highest back of the eyes. Clypeus slightly protruding and gently convex. Posterior eyes in a slightly recurved line, equal, separated by a little less than the diameter and a little nearer to the lateral. Anterior eyes in a very gently recurved line, the median smaller than the lateral, almost touching and separated from the lateral by less than the diameter.

Epigynum presents a median hour-glass shaped pale area. On each side of this the integument is thickened and nearly black bearing the openings midway from front to back. On the front margin is a low but distinct black semicircular median tooth formed from the thickened upturned anterior margin of the epigynum.

Type locality. Mt. Washington, N. H.

NEW HAMPSHIRE: Summit of Mt. Washington, 6000 ft., Aug. 19, 1925, 4 ♂ 15 ♀. WYOMING: Summit of Mt. Washburn, Yellowstone Park, 10,300 ft., Aug. 30, 1927, 1 ♂.

Cochlembolus sanctus n. sp.

♂. Length, 1.8 mm. Cephalothorax dusky brown; the clypeus and the eye area paler, the cephalic lobe pale dusky behind, the median line and a diagonal line extending inward and backward from the anterior lateral angle darker. Cephalothorax viewed from above rounded on the sides posteriorly, the sides converging towards the front and slightly concave at the cervical groove, obtusely pointed in front; viewed from the side, rather low and gently ascending to the base of the cephalic lobe where there is a slight depression, cephalic lobe rather high and rounded over the top, highest in front of the middle, the whole face slanting forward, clypeus protruding and strongly convex towards the margin. Cephalic lobe divided by a shallow median groove, clothed in front with hairs directed downward and outward. Cephalic pit small, circular, in a shallow groove.

Posterior eyes in a slightly recurved line, equal, the median separated by less than the diameter and from the lateral by more than the diameter. Anterior eyes in a gently procurved line, the median a little smaller than the lateral, almost touching and separated from the lateral by a little more than the diameter. Chelicerae yellow orange. Sternum and labium dark gray. Endites honey yellow lightly suffused with gray especially across the middle. Legs and palpi light yellow, the coxae dusky below. Abdomen gray. Epigastric plates coarsely striate.

Femur of palpus nearly straight, rather thick. Patella long and broader than the femur, straight. Ratio of length of femur to that of patella as 24 to 17. Tibia rather long, armed near base with a stout dorsal spine, the mesal margin diagonally truncate, smooth with a short blunt tooth curved forward on the dorsal angle. In dorsal view the tibia is narrower at base and then gradually widened on the mesal side and abruptly widened laterally, the swelling so formed thickly clothed with stiff hairs directed forward, the dorsal margin obliquely truncate with the mesal angle armed with two short black incurved teeth. Paracymbium small and strongly curved. Tegulum deeply excavated on the mesal side for the reception of the tail-piece of the embolic division, the bezel very high and extended forward as a quadrate membranous plate. The embolic division of the spiral type, the tail-piece thin and coiled with two turns, the embolus whip-lash in form and making a complete turn around the tip of the bulb.

Holotype male, in the Cornell University Collection.

UTAH: St. Johns, Oct. 8, 1927. 4♂ (R. V. Chamberlin).

Cochlembolus sacer n. sp.

♂. Length, 1.7 mm. Cephalothorax dusky yellow orange with darker radiating lines; viewed from above rounded on the sides posteriorly, the sides nearly straight and converging towards the front, clypeus protruding, rounded; viewed from the side, ascending evenly to the top of the cephalic lobe which is rounded on top and in front and separated from the ocular area by a transverse groove. Ocular area and clypeus slanting strongly forward in a straight line. Clypeus strongly convex. Cephalic lobe clothed in front with numerous stiff hairs directed forward and downward. Median ocular area clothed with shorter hairs. Cephalic pit small.

Posterior eyes in a slightly recurved line, equidistant, separated by the diameter. Anterior eyes in a slightly procurved line, the median smaller than the lateral, almost touching and separated from the lateral by more than the diameter. Chelicerae orange yellow. Sternum gray over orange yellow, darker along the edge. Endites the same color but without the gray. Legs and palpi orange yellow. Abdomen gray.

Femur of palpus nearly straight. Patella broader distally and gently curved downward. Ratio of length of femur to that of patella as 19 to 13. Tibia in dorsal view gradually widened distally with a sharp tooth on the mesal half which is separated by a deep rounded notch from the broader rounded lateral part. Tibia armed dorsally with a row of four stiff hairs. Tibia in mesal view shows the tooth at mesal angle short black and strongly incurved, and on the dorsal side near the margin in line with the row of hairs there is a high rounded hump. Bezel high and narrow. Embolic division very much as in *alpinus* but the embolus is much longer and very slender.

Holotype male, in the Cornell University Collection.

ALBERTA: Lake Louise, Aug. 4, 1927, 1 ♂.

Emerton (Conn. Acad. Sci. Trans. 20:150, pl. 2, fig. 7. 1915) figured this species under the name of *alpinus* Bks. His specimen was from Sulphur Mt., Banff, Alberta, and was taken in moss below the Alpine Club House.

COCHLEMBOLUS VERNALIS Emerton.

Lophocarenum vernalis Emerton. Conn. Acad. Sci. Trans. 6:51, pl. 14, fig. 8. 1882.

Diplocephalus vernalis Banks. U. S. Nat. Mus. Bul. 72:27. 1910.

The type specimens in the Museum of Comparative Zoology have apparently been dry and are very dirty. The colors are unreliable. The following notes were taken some years ago when the drawings of the palpus were made.

